

From boatanchors@theporch.com Fri Mar 3 22:03:48 1995
Date: Fri, 3 Mar 1995 19:15:54 -0600
Message-Id: <199503040129.UAA20317@cappuccino.eng.umd.edu>
From: Philip Gwynne McCoy <dgnova@glue.umd.edu>
Subject: 1L6

>I am glad that I did no damage to the T-0 by replacing the 1L6 with a
>1R5 but none of my databooks list the 1L6, so I had to rely on "lemon
>engineering" (suck it and see). The original Zenith 1L6 still works
>but it is getting a bit tired.

>Alyn Scott, G7RSK
Some one asked about the 1L6 characteristics. They
are as follows, taken from the sylvania tube manual:

filament voltage	1.4 volts
filament current	50ma
plate voltage	90 volts
screen voltage	45 volts obtained buy using 45000 ohms to 75000 ohms in series with the B supply.

anode grid voltage	90 volts
control grid voltage	0 volts
control grid resistance	1.0 megohm
oscillator grid resistor	0.2 megohm
plate resistance	0.65 megohm
plate current	0.5 ma
screen current	0.65 ma
anode grid current	1.2 ma
oscillator grid current	0.035 ma
total cathode current	2.35 ma
conversion transconductance	300 umohs
oscillator mutual conductance	550 umhos

(not oscillating and under the following conditions
Eb = 90 volts
Egs = 45 volts
Ega = 90 volts
eg and ego = 0 volts

Note that these charactoristics are very similar to those of the
1A7. Unfortunately the 1A7 is an octal based tube.

From boatanchors@theporch.com Fri Mar 3 18:08:13 1995
Date: Fri, 3 Mar 1995 16:13:09 -0600
Message-Id: <950303172619_38429086@aol.com>
From: JosephWP@aol.com
Subject: 1R5s for 1L6s

You all with Transoceanics - I have a large supply of NOS 1R5s. They were part of a bulk shipment so have been reboxed by me, but they are NOS.

\$ 1.50 each or 5/\$ 6.00 plus shipping.

Joseph Pinner +
Lafayette, LA
KC5IJD

From boatanchors@theporch.com Sat Mar 4 00:52:55 1995
Date: Fri, 3 Mar 1995 22:00:22 -0600
Message-Id: <9503040412.AA28849@uvs1.orl.mmc.com>
From: padgett@tccslr.dnet.mmc.com (A. Padgett Peterson, P.E. Information Security)
Subject: RE: 1R5s for 1L6s

Sorry about sending to the group but my mailer strips the header so cannot reply directly.

Joseph Pinner + rites:

>You all with Transoceanics - I have a large supply of NOS 1R5s. They were
>part of a bulk shipment so have been reboxed by me, but they are NOS.

I'll take twenty-five, please contact me directly.
padgett@tccslr.dnet.mmc.com

From boatanchors@theporch.com Fri Mar 3 11:08:50 1995
Date: Fri, 3 Mar 1995 09:16:12 -0600
Message-Id: <Pine.3.89.9503031021.A3791-0100000@ios.com>
From: Charles Sullivan <dorje@ios.com>
Subject: 810's wanted

Need some 810's to keep my KW-1 happy.
Thanx in advance!
Chuck WA1IIE
dorje@ios.com

From boatanchors@theporch.com Fri Mar 3 10:47:56 1995
Date: Fri, 3 Mar 1995 08:42:04 -0600
Message-Id: <9503031516.AA104363@csemail.cropsci.ncsu.edu>
From: rdkeys@csemail
Subject: Re: All right, explain me this.....

>
> Before screen grids, 2 MHz about was the practical upper limit for
> triode tube operation. That's why the AM broadcast band is below 2
> MHz...

Not exactly so. In the very earliest tube days (1919-1929) triodes would oscillate quite well up to about 10-15 mhz. Stability was a problem with changing tube element spacing upon heating, and with poor power supplies, etc. It was not uncommon for experimenters in the late 1920's on the 5 meter band to have things like '30's running on 60 mhz. It was not easy, because of so-called ``circuit losses'' (basically too much stray capacitance in breadboard circuits and too many resistive path losses). Tube bases were often removed to get rid of the ``losses'' due to poor bakelite properties of tube bases. At frequencies beyond 15 mhz, things could get a bit tricky with all the grid-plate capacitance and element lead inductance available in the tubes of the era. The Japanese were using type 19 tubes in VHF sets (a single tube switched between transmit and receive) even as late as the end of WWII (designed from 1934 and copied from ham designs of about 1930 in things like QST). The design was a bit dated, but it worked very well, and was a marvel of craftsmanship.

The hams were given the territory from ``200 meters and down'' because it was traditionally the useless frequencies for spark and very early commercial communications. But as the 20's progressed, it also became prime territory for the commercials, the military, etc. Historically, the commercials had the long and lower medium waves (10khz to 600khz). The territory above that was given to early broadcasters (600khz to 1600khz roughly, or 500-200 meters). When the military was interested in the spectrum, it went wherever it wanted to, but basically spark frequencies of 1mhz and lower, except for a few early 1920's designs like the SCR-77/131/151/161/171 (mid 1920's 2-5 mhz field sets). Both the Army and the Navy were basically disinterested in HF until Fred Schnell went on a round the world voyage with the Navy about 1924, and the Navy saw what amateur gear could do below 200 meters in wavelength. After that, the rush to short waves was on.

The tubes worked fine, but the hams showed the way in the mid 1920's and then the tubes improved even more in the late 1920's and early 30's, and the rest is history. Hams were then running things like acorns (dating from 1935) on 1-1/4 meters.

>

> This is why everyone should have a older copy of the Radio Amateurs
> Handbook, before it was all solid-state, theory-wise.

>

Absolutely true!

I recommend any of the early 1930's handbooks which one can usually find in a good University Library. Also, look for George Sterling's ``Radio Handbook'' and Duncan and Drew's ``Radio Telegraphy and Telephony''.

These date from 1927-1932. Another good source is Hugo Gernsbach's ``Radio'' magazine. The early 1920's issues are quite full of early amateur tube stuff. There is a November 1921 issue that has the world's simplest amateur transmitter in the one of the ``editor's columns''. I have run that rig on 160 and 80 quite successfully, although I prefer to loose couple it with a tuner rather than couple directly to the antenna (for late model FCC compliance).

I particularly recommend any 1953-1959 volume of the handbook as being a very good tube based information source. Beyond 1969, they lose sight of firebottles..... (:+{{.....

I treasure the few early QST's I have from the early 1920's that show the way it was done with the early tubes.

73/Bob/NA4G

From boatanchors@theporch.com Fri Mar 3 11:22:08 1995
Date: Fri, 3 Mar 1995 09:27:41 -0600
Message-Id: <m0rkZDQ-000EptC@dna.metronet.com>
From: kmccoy@dna.metronet.com (Kevin McCoy)
Subject: Re: All right, explain me this.....

On Thu, 2 Mar 1995 10:36:05, Kevin Sanders <kevin@beacons.cts.com> wrote:

>In a mixer circuit the signals being mixed may have wildy different
>voltages. A local oscillator signal will be orders of magnitude larger
>than the desired signal coming out of the RF amplifier. Yet to achieve
>proper mixing the two signals need to be on equal footing in terms of
>modulating the tube's conduction. This equal footing can be achieved

Actually, the local oscillator is usually injected at a much higher level than the input signal.

>If you tried to use a single-grid triode as a mixer, the mixing would
>be occurring *outside* the tube, in the coupling circuitry. One of the
>coupling capacitors would absorb the majority of the signal from the
>other one, and the grid would only see a single signal. Hence no mixing.

Any device with non-linear properties can serve in a mixer application. Different tube types achieve mixing in different ways:

- 1) pentagrid mixer (6L7) - signal applied to G1, which has a variable-mu characteristic, LO applied to G3, which modulates the electron stream. This type of modulation is similar to that which can be produced in an ordinary pentode by varying the voltage on the

suppressor grid.

- 2) pentagrid converter (6A7) - used as both an LO and mixer. G1 and G2 are the control grid and anode for the LO, and the signal is applied to G4. A "virtual cathode" forms on the cathode side of G4, and G4 controls the current that can pass between this cathode and the plate just like the control grid of an ordinary triode. The formation of this virtual cathode is gated by the pulses of current from the LO, producing the mixing action.
- 3) triode-hexode converter - operates like the pentagrid converter by means of the gating of a virtual cathode formation
- 4) triode/pentode plate detector - grid biased at cut off, so the LO serves to turn tube on and off, producing the mixing action, similar to the way a diode operates in a mixer. Since the signal and LO voltages are both applied to the grid, there is an undesirable coupling between these circuits.
- 5) diode tube detector - again, the signal and LO voltages can be combined, then rectified by the diode. The non-linearity of the diode produces the sum and difference products desired in a mixer. Same drawbacks as 4), but can be used at higher frequencies than triode or multigrids, since the diode has fewer negative transit-time effects.

(See Terman, Radio Engineering (1947), pp.525-539 for a good treatment on frequency conversion.)

73,

-- Kevin

```
*** Kevin McCoy      KJ5PM   DNA Enterprises, Inc.      ***
*** (214) 424-7795    1825 E. Plano Parkway, Suite 230A ***
*** kmccoy@dna.metronet.com  Plano, TX 75074      ***
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From boatanchors@theporch.com Fri Mar 3 14:43:44 1995

Date: Fri, 3 Mar 1995 12:33:31 -0600

Message-Id: <9503031820.AA26786@uvs1.orl.mmc.com>

From: padgett@tccslr.dnet.mmc.com (A. Padgett Peterson, P.E. Information Security)

Subject: Re: All right, explain me this.....

73/Bob/NA4G rites:

>Both the Army and the Navy were basically disinterested in HF until

>Fred Schnell went on a round the world voyage with the Navy about
>1924, and the Navy saw what amateur gear could do below 200 meters
>in wavelength. After that, the rush to short waves was on.

Might mention (try and stop me 8*) that it was a publicity stunt dreamed
up by Commander McDonald (head of Zenith until his death in 1958) in
conjunction with an Arctic expedition. One of the demos was a transmission
of Eskimo singing picked up by the fleet off Hawaii. The other interesting
thing is that both were in their twenties at the time.

Since all of this led to the Zenith shortwaves of the '30s (virtually every
console went up to 18 MC) and the TransOceanic portable of 1941 (design
actually began in 1938), it has a particular interest to me.

Warmly,
Padgett

From boatanchors@theporch.com Fri Mar 3 04:33:05 1995
Date: Fri, 3 Mar 1995 02:23:52 -0600
Message-Id: <9503030832.AA27502@cybernetics.net>
From: ab4el@cybernetics.net (Stephen Modena)
Subject: BA Archive Site? Where?

Mark--

> ...
> I believe there is a site (outside of theporch.com) that is maintaining the
> BA digests for 'back issue' reading? Are these available by day, week, or
> what, and above all, where from? I'm assuming they are on a FTP site
> somewhere, but I'll manage whatever connectivity is required to restore my
> articles..
>
> 73! - Mark, NE9G

The archives are "daily."

ftp sunsite.unc.edu /pub/academic/agriculture/agronomy/ham/BOATANCHORS

Web access is via: <http://www.theporch.com>
select 2nd choice on homepage about AB4EL and
boatanchors archives...which leads to a
page that is self-explanatory.

--

73/Steve/AB4EL ab4el@Cybernetics.NET in Raleigh, NC 35.81245N, 78.65849W

From boatanchors@theporch.com Fri Mar 3 23:11:19 1995
Date: Fri, 3 Mar 1995 20:07:17 -0600
Message-Id: <F33K1952.F33K2002@mail.admin.wisc.edu>

From: TOM.A.ADAMS@mail.admin.wisc.edu
Subject: BA Radio Nets

to: boatanchors@theporch.com

Hello Kevin.

To your list of BA frequencies on the ham bands, add these two:

1885 KHz
1995 KHz

Both of these are AM frequencies that are active nightly in the midwest and on the east coast. They're both usually +/- 3 KHz (and on 1995 the "plus" is cutting it too damned close!).

With the excellent 160 metre propagation this winter, both frequencies have produced armchair copy from BOTH coasts on a fairly regular basis. Lots of action from Minnesota, Iowa, Kansas, N. Dakota, Nebraska, Oklahoma, Colorado, Tennessee, and Kentucky copied here; not too surprising, seeing as how this winter CW on 160 has given me Sweden, Cuba, Alaska, Hawaii, England, and Poland as new "top band" countries!

1885 KHz is likely to be productive from aprox. 2000 to 2400 central time.

1995 KHz is good in the same time frame, and is additionally active most mornings, aprox. 0400 to 0730 central. There is a pretty active group there covering Illinois, Ohio, Michigan, Maryland, W. Virginia, and upstate New York; interestingly, the band often hangs in for long distance communication long after sunrise for the New York / Wisconsin path. These guys are REAL boat anchor artists, and most of the talk is of a technical nature. I can't remember the last time a Japanese import rig checked in on this group; it's ALL old, U.S. built heavy iron rigs, with a LOT of military surplus (R-390As are very popular, and one guy in Maryland regularly checks in with his unconverted T-195 / GRC-19).

You'll hear me in there fairly often, on my days off, with the Globe King 500 pumping away into a Windom (there in Rock Island, your antenna will probably lean away from Wisconsin when my carrier comes on; no brag, just fact!). Among other stuff you'll hear there is Valiants, a BC-610 or two (MI and WI), the odd T-368 here and there, numerous Rangers and DX-100s, and at least one converted AM broadcast transmitter!

73's,

Tom, K9TA
("...the AM Voice of Sun Prairie, Wisconsin")

From boatanchors@theporch.com Fri Mar 3 17:38:45 1995
Date: Fri, 3 Mar 1995 13:51:53 -0600
Message-Id: <Pine.SUN.3.91.950303135024.1100A-100000@ncrsun7>
From: Kevin Anderson <anderson@ncrsun7.ncr.usace.army.mil>
Subject: boatanchor radio nets?

BA gang,

Are there boatanchor oriented radio nets?

I am aware of:

- 3885 kc and thereabouts for AMers (mostly east coast from what I gather; I can't seem to get that well here in middle america, as it just sounds like squak and garbage on my S-38C, although I can tell it is AM by carrier present)

- 7290 kc, which is a 40m AM net (mostly afternoon from what I've observed and upper midwest states; anyone here participate?)

- Bob Keys' Friday Night Fist Fist, a straight key gathering Friday nights on 160 and 80M (not necessarily BA, but related, with many boatanchors present; I'm straight key all the time!)

I know that boatanchors are spread throughout the airwaves. For instance, a week ago, my HW-16 got to spread its wings and chat with a HT-37. A month ago I worked a Texan with a KWM-2.

I would like to see us take this technical talk to the airwaves again as it once was. For now I'm limited to Novice 40m and CW, but I would like to listen in if I can have you guys on the air. Hopefully I can join in. Also, I would like to know what goes on "across the pond" in Europe and Asia -- boatanchor chat there?

Cheers/73 on a Friday. Kevin, KB9IUA

Kevin L. Anderson, CENCR-PD-W, U.S. Army Corps of Engineers
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Rock Island, Illinois 61204-2004, USA phone:(309) 794-5586
e-mail: anderson@ncrsun1.ncr.usace.army.mil

Opinions expressed here are my own and do not represent the
U.S. Army Corps of Engineers or the Federal Government.

From boatanchors@theporch.com Fri Mar 3 23:33:31 1995
Date: Fri, 3 Mar 1995 20:24:54 -0600

Message-Id: <199503040238.SAA00910@ix3.ix.netcom.com>
From: jlockwd@ix.netcom.com (Jim Lockwood)
Subject: Re: boatanchor radio nets?

>Are there boatanchor oriented radio nets?

One net with good national propagation is the Vintage SSB Net. It meets on Sundays at 1900 UTC on 14293 +/-drift & QRM. All forms of hollow state SSB gear are welcome, whether it's a HW-32 or a KWS-1. Altho it is a directed net, it's pretty informal and often degenerates (escalates?) into a round table.

The usual net control is Chuck, N5SW0, but last time I could check in he was temporarily QRT due to a move. Andy, WB0SNF, in Nebraska is one alternate net control. During Chuck's absence, there has been third net control...Don, or Dan...but I can't remember his call and my log book is already packed for shipping.

73,

Jim - km6nk/4

From boatanchors@theporch.com Fri Mar 3 18:15:14 1995
Date: Fri, 3 Mar 1995 16:17:25 -0600
Message-Id: <60746@w5ddl.aara.org>
From: n5off@w5ddl.aara.org
Subject: Dayton Note Taker Needed

Pls let me know if you are going to Dayton. I'd like to enlist the services of a note taker on BA's, specifically R-390A's.

73 de tom

From boatanchors@theporch.com Sat Mar 4 02:33:57 1995
Date: Fri, 3 Mar 1995 23:45:43 -0600
Message-Id: <Pine.3.89.9503040640.A13133-0100000@inet.uni-c.dk>
From: MEC <danmec@inet.uni-c.dk>
Subject: Re: Dayton Note Taker Needed

I WILL BE COMING TO DAYTON (AFTER VISALIA AND BUSINESS ! HI)
73 RAG OZ8RO

On Fri, 3 Mar 1995 n5off@w5ddl.aara.org wrote:

> Pls let me know if you are going to Dayton. I'd like to enlist
> the services of a note taker on BA's, specifically R-390A's.
>
> 73 de tom
>

From boatanchors@theporch.com Fri Mar 3 12:41:15 1995
Date: Fri, 3 Mar 1995 10:46:32 -0600
Message-Id: <199503031657.AA136969822@hp.com>
From: Scott Turner <scott@hplst.lvld.hp.com>
Subject: Re: Drake mic plug

Hello all,

Jim writes:

> Therefore I standardized,
> a good thing to do for one who works for the National Bureau of Standards
> --oops NIST, I installed 1/4 inch jacks on everything the Drake C line,
> the Heathkit SB100 and HW12A and others I no longer have. Therefore just
> replace all Drake mic Jacks with a 1/4 inch. IE haven't replaced the
> one on the DX100B yet.

While I won't criticize Jim for what he's done (they're his radios after all) I would strongly recommend *NOT* doing this. First of all, the plug used on the Drakes *is* a standard plug, and is still widely used in a variety of applications including still being the current plug standard for all General Aviation aircraft mics. That it is not a 1/4 inch plug doesn't make it non-standard. It is not at all difficult to find, being widely available from any reasonable electronics supply outlet (and yes I realize that your corner Radio Shack doesn't stock them). If you feel you must have a plug standard for all of your radios, why not do the (very simple) conversion outside the radio leaving the radio more standard. Shoot, that's easier to do anyway. It's what I'd do to plug a Kenwood mic into a Yaesu as well. (sorry about the language)

I'm really not that much of a purist, but this is one mod I really would hate to see people doing very much.

Respectfully,

Scott Turner KG0MR scott@hplst.lvld.hp.com -or- scottt@csn.net

From boatanchors@theporch.com Fri Mar 3 17:16:07 1995
Date: Fri, 3 Mar 1995 15:19:55 -0600
Message-Id: <Pine.SUN.3.91.950303150956.27545A@little-miami.iac.net>

From: Bill Strangfeld <bstrang@iac.net>
Subject: Re: Drake mic plug

> [material deleted] First of all, the
> plug used on the Drakes *is* a standard plug, and is still widely used
> in a variety of applications including still being the current plug
> standard for all General Aviation aircraft mics. That it is not a 1/4
> inch plug doesn't make it non-standard.

My green boatanchors (WWII military gear like BC-654 and BC-620) use the small plug for the mike and the standard 1/4 incher for the phones. Probably to make it easier to get it right in the dark. I always thought that might have had something to do with why Drake used the small mic plug.

73 Bill WB8YUW

From boatanchors@theporch.com Fri Mar 3 10:53:10 1995
Date: Fri, 3 Mar 1995 09:02:02 -0600
Message-Id: <9503031511.AA05526@speckle.ncsl.nist.gov>
From: morgan@speckle.ncsl.nist.gov (Roy Morgan)
Subject: Re: Hallicrafters Net Oracle advice

Bob Okas Wrote:

>
> Last is an SX-25 "Super Defiant" ... I feel a strange attraction to this one.

This is a strong symptom of entrenched boat-anchor-syndrome. Few who are afflicted for more than a short time are able to overcome it's effects. Don't bother trying. Simply give in and acquire the thing. It is almost guaranteed to to ALL of the following:

- Demand many hours of restoration, repair, alignment, tweaking, and so on.
- Finally come into a state of working better than it did when it was new (due to all those mylar and other film caps you put in, and care with which you allign it.)
- Never, never equal a modern rice-box or fancy later military receiver in features, image rejection, sensitivity, stabililty, or readout accuracy.
- Become the receiver you listen to most.
- Please you more than all the rice boxes in the world.

Sooo ... GO FOR IT!

--
Roy --

Roy Morgan / Tech A-266 / NIST / Gaithersburg MD 20899
(National Institute of Standards and Technology, formerly NBS)
301-975-3254 Fax: 301-948-6213 Internet: morgan@speckle.ncsl.nist.gov

From boatanchors@theporch.com Fri Mar 3 17:17:18 1995
Date: Fri, 3 Mar 1995 15:17:38 -0600
Message-Id: <8b6_9503031608@satlink.oau.org>
From: Russ.Lebanc%225@satlink.oau.org (Russ Leblanc)
Subject: RE: HAMIFICATION (ORLANDO)

Hi Terri,

The SX100 has been sold, along the the R600 T/O. The Super Pro is a JX1.
It needs to be recapped, and has no case (was rack mounted), and would
prefer not to ship it due to it's weight. I'll keep an eye open for the
speakers you mentioned and will check with a friend on the HRO parts.

Russ

___ Blue Wave/QWK v2.12
--- FidoPCB v1.4 [ff232/a]
--
|Fidonet: Russ Leblanc 1:363/225
|Internet: Russ.Lebanc%225@satlink.oau.org
|
| Standard disclaimer: The views of this user are strictly his own.
| From C.F.Satlink +1-407-240-7781 (ANSI or Vt-100 _required_).

From boatanchors@theporch.com Sat Mar 4 01:09:12 1995
Date: Fri, 3 Mar 1995 22:18:39 -0600
Message-Id: <Chameleon.4.01.2.950303232606.jproc@>
From: jproc@worldlinx.com
Subject: Harrison Bros Manual

Dear BA's,

Has anyone ever heard of a radio trade catalogue by Harrison Bros of New York
City? This is a real long shot, but I am trying to find some information
which is lurking in the 1942-44 edition.

Jerry Proc, VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer
HMCS Haida, Toronto Ontario

From boatanchors@theporch.com Fri Mar 3 09:04:22 1995
Date: Fri, 3 Mar 1995 06:58:30 -0600
Message-Id: <199503031307.FAA24403@ix2.ix.netcom.com>
From: jlockwd@ix.netcom.com (Jim Lockwood)
Subject: Re: HT-44 Question

You wrote:

>
>Anyone out there have experience with the Hallicrafters HT-44. Mine
>loads up
>on 80-20 just fine. However, when I peak the driver on 15 the peak is
>extremely sharp, so sharp in fact that just removing my hand from the
>knob
>detunes it.

I interpret the shift in tuning as possibly a hand capacity effect.

I believe I'd look at three things. First, I would verify that whatever grounding system is on the rig is still an RF ground on 15M. Second, I think I would look at the antenna arrangement for any possible imbalance that could be bringing some RF back along the outside of the feedline and onto the case of the transmitter.

The third thing I'd look at is neutralization. Do you know for sure that the rig has been neutralized properly?

Good luck,

Jim - km6nk/4

From boatanchors@theporch.com Fri Mar 3 10:46:20 1995
Date: Fri, 3 Mar 1995 08:51:45 -0600
Message-Id: <9503031500.AA05382@speckle.ncsl.nist.gov>
From: morgan@speckle.ncsl.nist.gov (Roy Morgan)
Subject: Re: Matched Finals

I tested
>the tubes by installing only one of the tubes in one of the amplifiers,

>driving the amplifier with 25W, and measuring max output on 20M. Each
>tube had a particular output.

This seems like a very practical approach.

I'll try in on my Valiant with it's three 6146's.

--

Roy --

Roy Morgan / Tech A-266 / NIST / Gaithersburg MD 20899
(National Institute of Standards and Technology, formerly NBS)
301-975-3254 Fax: 301-948-6213 Internet: morgan@speckle.ncsl.nist.gov

From boatanchors@theporch.com Fri Mar 3 14:33:30 1995
Date: Fri, 3 Mar 1995 12:37:13 -0600
Message-Id: <Pine.3.89.9503031227.A29449-01000000@ozarks>
From: "C. Frank Gilmore" <fgilmore@ozarks.sgcl.lib.mo.us>
Subject: Re: Matched Finals

On Fri, 3 Mar 1995, Roy Morgan wrote:

> I tested
> >the tubes by installing only one of the tubes in one of the amplifiers,
> >driving the amplifier with 25W, and measuring max output on 20M. Each
> >tube had a particular output.
>
> This seems like a very practical approach.
>
> I'll try in on my Valiant with it's three 6146's.
>
>
> --
> Roy --
>

My experience in servicing gear when sweep tubes first began showing up,
most notably in Swans, was to do the checkout on 10 meters. Many would
show great matching/similarity on lower bands but go nuts on 10.

Still the case with these Bulgarian import 6JB6s. Got some Czech 6HF5s

last fall and same story. Even on 15 they were cooking along pretty good but hit ten and output dropped by 75% or even more and you had lots of fun matching them.

Twenty meters worked fine with trusty old 6146s and 811As etc.

I have one Sylvania 6JB6, NOS, that will exceed specs until 10 and the output is 3 watts on the Bird wattmeter. I thought it had to be the rig so stuck it in another T-4XB I had on the bench and exactly the same thing, so even American sweep tubes were flakey.

It is like the gassy 6U8s. In the S Line they don't last long, 6EA8s would do much better but still short lived. One dealer used to let me bring home thirty at a time to test with the understanding that I would buy all that had no gas loss! Sometimes it would be as many as seven or eight. One time it was two. What a ratio! These were Raytheon and Sylvania's. RCA dealer did for a while but quit....actually found better tubes there!

My dimes worth on the subject.

73, de K0JPJ ex-W5PVX ...--

From boatanchors@theporch.com Fri Mar 3 14:38:21 1995
Date: Fri, 3 Mar 1995 12:29:18 -0600
Message-Id: <107D0AC018A@s1.xetron.com>
From: "Jack Giehl" <JACKG@s1.xetron.com>
Subject: Microphone adaptors

Dear BA Enthusiasts:

I agree with Scott Turner concerning modifying the Drake mike connector. I made an adaptor with a plug that fits the Drake T4XC on one end, about 2 feet of shielded cable, then a stereo 1/4 female cable connector(available at Radio Shack) on the other end. I have a D104 with a 1/4 stereo plug.

I also have a similar adaptor for the 2 pin connector used on the Collins KWS-1 and Johnson Ranger & Valiant.

Jack

73,

=====

Jack, WB8BFS

jackg@xetron.com Loveland, Ohio (near Cincinnati)

"Peak the grid, dip the plate, and keep the fire in the wire."

=====
From boatanchors@theporch.com Fri Mar 3 19:42:18 1995
Date: Fri, 3 Mar 1995 17:42:34 -0600
Message-Id: <199503032356.PAA01471@hobbes.UCSC.EDU>
From: haynes@cats.ucsc.edu (Jim Haynes)
Subject: Oddity about R-390A

The audio chassis of the R-390A has a couple of holes that look like they are for tube sockets, covered by a plate. What seems odd is that every R-390A I have seen is this way, not just the original Collins ones. So if the extra holes resulted from a design change why was it perpetuated through years and years of production? Or are the holes intended for some optional feature?

From boatanchors@theporch.com Fri Mar 3 09:55:53 1995
Date: Fri, 3 Mar 1995 07:44:36 -0600
Message-Id: <2F573BBE@MSMGATE.TRACOR.COM>
From: "Kasprzyk, Emil" <EFK@eng2.tracor.com>
Subject: Re: R-390A and Mike Knudsen

The R-390 & R-390A were not designed to be FUN receivers. They designed during wartime to do two things:

1. Provide teleprinter service for point-to-point communication.
2. SPYING, i.e. sitting on a given frequency for long periods of time awaiting certain signals/operators.

Both of these conditions require a relatively drift free receiver, something the R-390s excel in.

If you want a fun receiver, buy a Drake R-8, easy to tune, lightweight, and hard on the pocketbook. Yes, I own both an R-8 and several R-390As.

Emil F. Kasprzyk, KC5IZ WPE5IE

From boatanchors@theporch.com Fri Mar 3 23:09:56 1995
Date: Fri, 3 Mar 1995 20:12:21 -0600
Message-Id: <60843@w5ddl.aara.org>
From: n5off@w5ddl.aara.org
Subject: R-390A Blank Plate Ans

The blank plate on the R-390A AF module is for an optional squelch unit.

>From the R-390 cost reduction report,

" At the start of the contract it was considered desirable to drop the squelch requirement. An investigation was completed showing a cost saving of \$14.00 by eliminating this function. Later on, the Signal Corps decided to make this an optional unit retaining the cable wiring and function switch and leaving out the parts in the AF unit. With this method a cost reduction of about \$10.00 is still possible. An optional kit of parts can be made available for field installation of the squelch facility."

The date of the report is 1952.

It seems that they intended to leave the squelch knobs in place, which didn't happen I guess.

73 de tom

From boatanchors@theporch.com Fri Mar 3 06:14:00 1995
Date: Fri, 3 Mar 1995 04:05:25 -0600
Message-Id: <Pine.3.89.9503031134.A27168-01000000@inet.uni-c.dk>
From: MEC <danmec@inet.uni-c.dk>
Subject: Re: R-390A Users, Info Wanted

I have a R390A
Maker: Motorola con.yr 1954. Contract 363-PH-54 S/N 954

rgds Rag OZ8RO

From boatanchors@theporch.com Fri Mar 3 14:37:53 1995
Date: Fri, 3 Mar 1995 12:39:54 -0600
Message-Id: <199503031850.AA240626658@hp.com>
From: Scott Turner <scott@hplst.lvld.hp.com>
Subject: Re: R-4A problems

Jim writes:

> My recently acquired R-4A seems to have an intermittent
>receive problem. Sometimes when I turn it on, the S meter hovers around +60dB
>and I get no signals whatsoever. Even in CAL mode there's nothing. Shut it
>off, throw a temper tantrum or two, power it back up and presto! It's working
>again although even with the antenna disconnected the S meter shows S5.

Assuming that the R4A works similarly to the R4 which I am (all too!) familiar with, I'd be most suspicious of the two variable resistors in the AGC circuit; the RF gain control itself, and the receiver sensitivity pot. The AGC lines are used to bias the RF and IF amps to cutoff for muting. One or both of these may be a bit grundgy. Check the

voltage on the AGC line(s) and twiddle with these two adjustments and see what you get. If you're seeing large negative voltages that jump around wildly while you adjust, that's probably your problem.

I'd also suggest going through the receiver sensitivity and S-Meter adjustment procedures in the alignment section of the manual and see how things come out.

Scott - who just got through fixing the opposite problem... an R4 that wouldn't mute.

Regards,

Scott Turner KG0MR scott@hpsla.lvld.hp.com -or- scottt@csn.net

From boatanchors@theporch.com Fri Mar 3 14:31:02 1995
Date: Fri, 3 Mar 1995 12:27:13 -0600
Message-Id: <9503031836.AA00754@yellowjacket.West.Sun.COM>
From: tony.angerame@west.sun.com (Tony Angerame - Sun SSE)
Subject: R-808/GRC-14

This has to qualify for this group by sheer weight alone! Certainly not a "Manpack" Radio this olive drab box almost looks bullet proof. Nice general coverage radio with a built in fsk demod. Anyone know any history on this radio? It appears to be from the Vietnam era and looks brand new. Can a value be attached to this piece of gear? At 70 lbs I should show up to Field Day with this one.

73,

Tony WA6LZH

From boatanchors@theporch.com Sat Mar 4 01:05:32 1995
Date: Fri, 3 Mar 1995 22:17:48 -0600
Message-Id: <Chameleon.4.01.2.950303232016.jproc@>
From: jproc@worldlinx.com
Subject: Resource

Dear BA's,

I have a book called Most Often Needed Radio Diagrams from 1926 to 1938. These were compiled by M. Beitman and printed by Supreme Publications in 1941. If anyone is looking for a radio schematic from that period, send me an

E-mail and I will look it up.

Jerry Proc, VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer
HMCS Haida, Toronto Ontario

From boatanchors@theporch.com Sat Mar 4 01:35:37 1995
Date: Fri, 3 Mar 1995 22:45:23 -0600
Message-Id: <9503032239.aa01418@jackatak.theporch.com>
From: List Admin/Owner BoatAnchor Mail List <listown@jackatak.theporch.com>
Subject: The "Source" for Parts

Hey Gang-

We have a bandaid on the bleeding, and my daily list admin mail is slowly becoming manageable.

Sorry for this "duplicate" but somehow, in all the flotsam and jetsam of a sinking subscription list, I deleted or lost the email from my first volunteer for assistance with the "Parts Source" list...

(John, in hiding with Pancho Villa, I have you...it is the others I need again! ;^)

And, for those still back where you are, step up with those files of potential interest to the BA List members... Bob Keys, if you could, I would love to have some of your wonderful posts about your military gear and how you keep it "lit"...

Jeff, I have seven parts of your NMO watch stories, and would love to have your permission to make them available to the newer folks through the list processor...

And, other files are sought... and volunteers to help put a measure of order on them....

--
73

Jack, W4PPT/Mobile (75M SSB 2-letter WAS #1657/#1789 -- both all mobile! ;^)
* - - - BoatAnchor Mailing List Owner - - - *
| Jack GF Hill |Voice: (615) 459-2636| Ham Call: W4PPT |
* P. O. Box 1685 |Modem: (615) 377-5980| Bicycling and SCUBA Diving *
| Brentwood, TN 37024|Fax: (615) 459-0038| Life Member - ARRL |
* listown@jackatak.theporch.com-"Plus ca change, plus c'est la meme chose" *

From boatanchors@theporch.com Fri Mar 3 13:32:46 1995
Date: Fri, 3 Mar 1995 11:39:02 -0600
Message-Id: <199503031748.JAA06133@ix2.ix.netcom.com>
From: jlockwd@ix.netcom.com (Jim Lockwood)
Subject: Transistors, a passing fad?

Gang,

Check out the January 27 issue of Newsweek, page 75. You'll find there a one page article about musicians who are rediscovering the "richer and warmer" sounds that tube type amplifiers produce.

It's just a fantasy, mind you, but if more megadollar mu\$ician\$ insist on tube gear, there could continue to be a good supply of firebottles for a few more years.

FWIW,

Jim - km6nk/4

From boatanchors@theporch.com Fri Mar 3 14:31:02 1995
Date: Fri, 3 Mar 1995 12:31:19 -0600
Message-Id: <9503031842.AA07508@speckle.ncsl.nist.gov>
From: morgan@speckle.ncsl.nist.gov (Roy Morgan)
Subject: Re: Transistors, a passing fad?

musicians who are rediscovering the "richer and
>warmer" sounds that tube type amplifiers produce.
...there could continue to be a good supply of firebottles
>for a few more years.

The musicians consume 10 times as many tubes as the hifi market - mostly 6L6's, EL-34's and 6550's.

--

Roy --

Roy Morgan / Tech A-266 / NIST / Gaithersburg MD 20899
(National Institute of Standards and Technology, formerly NBS)
301-975-3254 Fax: 301-948-6213 Internet: morgan@speckle.ncsl.nist.gov

From boatanchors@theporch.com Fri Mar 3 17:33:58 1995
Date: Fri, 3 Mar 1995 15:34:03 -0600

Message-Id: <Pine.3.89.9503031504.A23671-0100000@ozarks>
From: "C. Frank Gilmore" <fgilmore@ozarks.sgcl.lib.mo.us>
Subject: Re: Transistors, a passing fad?

On Fri, 3 Mar 1995, Jim Lockwood wrote:

> Gang,
>
> Check out the January 27 issue of Newsweek, page 75. You'll find there
> a one page article about musicians who are rediscovering the "richer and
> warmer" sounds that tube type amplifiers produce.
>
> It's just a fantasy, mind you, but if more megadollar mu\$ician\$ insist
> on tube gear, there could continue to be a good supply of firebottles
> for a few more years.
>
> FWIW,
>
> Jim - km6nk/4
>
>

But Jim pick up one of the high end audio magazines and look at where the tubes are made and prices....my brother collects those high dollar preamps and amps and his tube replacement closet is worth more than my whole collection of new 3-400Z and 3-500Z with a few new 813s thrown in.

And he admits readily the matched KT-88s don't sound nearly as good as the old Mullard Gold Lion series. The list of different tube types from these countries ...Russia, China, Bulgaria, Poland, etc is pretty short and very audio oriented....darn it.

73, Frank K0JPJ ex-W5PVX ...-.-

From boatanchors@theporch.com Fri Mar 3 18:07:57 1995
Date: Fri, 3 Mar 1995 13:58:34 -0600
Message-Id: <199503032010.PAA18140@Shiva.COM>
From: John Shriver <jas@shiva.com>
Subject: Re: Transistors, a passing fad?

Those guitar amp guys are why the rest of us can get Russian and Chinese 6L6's, etc., at all. The other markets (hams, audio) don't amount to a hill of beans after guitar amps!

(Guitar amps use a LOT of power tubes, and run them hard, in grid current for distortion, so they don't even last long.)

From boatanchors@theporch.com Fri Mar 3 18:27:57 1995
Date: Fri, 3 Mar 1995 16:30:01 -0600
Message-Id: <9503032243.AA11284@speckle.ncsl.nist.gov>
From: morgan@speckle.ncsl.nist.gov (Roy Morgan)
Subject: Re: Transistors, a passing fad?

The list of different tube types from
>these countries ...Russia, China, Bulgaria, Poland, etc is pretty short
>and very audio oriented....darn it.

Oh, but you haven't called:

R&G International
8200 South Memorial Parkway
Huntsville AL 35802

Svetlana: power grid and audio tubes
Audio Classic: matched and tested tubes
PRIDE: RF Tested tubes for amateur radio

800 456 5642 x207
205 880 3660
205 880 8077 fax

Pride Tubes 800-638-3925 (?)

The PRIDE tube line is made overseas. These guys have lots of transmitting tubes from offshore.

--

Roy --

Roy Morgan / Tech A-266 / NIST / Gaithersburg MD 20899
(National Institute of Standards and Technology, formerly NBS)
301-975-3254 Fax: 301-948-6213 Internet: morgan@speckle.ncsl.nist.gov

From boatanchors@theporch.com Fri Mar 3 18:57:25 1995
Date: Fri, 3 Mar 1995 16:58:34 -0600
Message-Id: <199503032311.SAA22011@Shiva.COM>
From: John Shriver <jas@shiva.com>
Subject: Re: Transistors, a passing fad?

Actually, the Russians make some very serious transmitting tubes. Beasts with 5000 watt plate dissipation, and even bigger.

Most of their transmitting tubes just don't cross to any American types. Heck, they don't fit in any American sockets!

Many of their receiving tubes do cross to American, or at least try to. (The cheap 6L6 and 6V6 don't really have the plate voltage rating of the American ones..)

There is an article in the fourth 1994 issue of Glass Audio about the Russian tube factories, it talks about quite a few very serious transmitting tubes. Of course, none of these transmitting types are exported through the existing channels bringing in receiving tubes.

From boatanchors@theporch.com Fri Mar 3 19:55:24 1995
Date: Fri, 3 Mar 1995 17:53:49 -0600
Message-Id: <7439@sat.ampr.org>
From: ki5sl@sat.n5lyt.ampr.org (Rick_Blank)
Subject: Re: Transistors, a passing fad?

In message <199503031748.JAA06133@ix2.ix.netcom.com> jlockwd@ix.netcom.com writes:

> Gang,
>
> Check out the January 27 issue of Newsweek, page 75. You'll find there
> a one page article about musicians who are rediscovering the "richer and
> warmer" sounds that tube type amplifiers produce.
>
> It's just a fantasy, mind you, but if more megadollar musician\$ insist
> on tube gear, there could continue to be a good supply of firebottles
> for a few more years.
>
> FWIW,
>
> Jim - km6nk/4
>
>

The "Golden Ear" audiophiles insist on either class "A" solid state or tube type amps, and, the latest, greatest thing in tube audio is Western Electric 300B single-ended 8-10 watt class "A" amps that for a basic, stereo amp (no preamp, etc.) in kit form lists at greater than \$1000.00 from several sources!

I personally use a pair of Dynaco Stereo-70's for the mid-range and treble drivers in my Infinity RS-III's and a Soundcraftsman PCR800 solid state amp for the four bass drivers...an active electronic crossover splits the frequencies to the three

amps...the 200+ watts per channel and the better control of the woofers by the solid-state amp make a BIG difference from the original Dynaco bass response...the Dynaco's are stock and original(yes, the tubes,too!)...I have a few CD's produced by Vacuum Tube Logic using exotic microphones and tube electronics to drive the tape recorders used to make the masters...I have had many unsolicited comments to the effect of: "Man, that sounds like there's a real band in the den! It doesn't sound like a "stereo!"....then I take them into the radio room and show them the BC-610 and it's real firebottle final!

I can bring a smile to the face of just about all the jaded transistor junkies that I know when I throw the filament power switch on that baby!

--

Rick Blank, KI5SL
ki5sl@sat.ampr.org
2223 Blanco Road
San Antonio, Texas 78212
end

From boatanchors@theporch.com Fri Mar 3 22:58:26 1995
Date: Fri, 3 Mar 1995 20:01:52 -0600
Message-Id: <199503040215.SAA27446@ix3.ix.netcom.com>
From: jlockwd@ix.netcom.com (Jim Lockwood)
Subject: Re: Transistors, a passing fad?

>Pride Tubes 800-638-3925 (?)
>
>The PRIDE tube line is made overseas. These guys have lots of
>transmitting
>tubes from offshore.
>

Is there any first hand experience with Pride tubes in this group? Care to share it?

73,

Jim - km6nk/4

From boatanchors@theporch.com Fri Mar 3 10:51:57 1995

Date: Fri, 3 Mar 1995 08:53:59 -0600
Message-Id: <199503031501.KAA05929@altair.cs.unc.edu>
From: Nick England <nick@cs.unc.edu>
Subject: Tucker info

got two really interesting pieces in the mail from Tucker Electronics
in Dallas.

VACUUM TUBE PRODUCT AND PRICE LIST

Six page listing of tubes for sale

sample prices

6BA6 new \$3.50 used \$1.75
12AU7 new 4.50 used 2.25
6146B new 18.00 used n/a new (China) 15.00

CLASSIC RADIO GEAR PRICE LIST

Two pages of boatanchors (in small type)

examples

9 ea, Eico 720 xmtrs \$40-70
12 Globe scouts and Chiefs of various models \$55-100
31 Hallicrafters rcvrs
16 Hammarlund rcvrs
6 National rcvrs
7 Heath Q-multipliers \$20-30

"This is only a partial listing of our huge inventory! Call today"

I commend them for including the following for each item -

Front Panel & Case - Poor/Fair/Good/VG

Knobs - Yes/ # missing/ # not original

All Parts - yes/no

Orig - yes/no

All tubes - yes/no

unit works - yes/no/sort of/??

defects - typical comments

meter sw frozen

btm missing, add rear switch, meter not original, cover screws out

output connector changed to non-EICO

needs new xtal socket

no power cord, cover latches missing

case badly dented & scratched

many modifications

Call 1-800-527-4642 for a copy or order

I assume many/most of these are from the humongous estate collection that they bought a couple of months ago. I have no connection with Tucker other than having bought an HP sweep generator from them one time (and being disappointed that they would only offer me 15% when I wanted to trade it in a year later...)

You guys in the big D ought to go root around and see what they got over there.
regards,
Nick KD4CPL

From boatanchors@theporch.com Fri Mar 3 14:55:59 1995
Date: Fri, 3 Mar 1995 12:55:39 -0600
Message-Id: <9503031847.AA26972@uvs1.orl.mmc.com>
From: padgett@tccslr.dnet.mmc.com (A. Padgett Peterson, P.E. Information Security)
Subject: RE: Tucker info

>VACUUM TUBE PRODUCT AND PRICE LIST

>Six page listing of tubes for sale

>CLASSIC RADIO GEAR PRICE LIST

>Two pages of boatanchors (in small type)

Have dealt with Tucker before (mostly with a gentleman named Warren Kampmeier). In the units I purchased they even furnished a "serviceman's report" of condition both physically and electrically that was pretty thorough. Keep in mind though that this is just one piece of a high volume operation and not a high-dollar one so they may not notice some things that leap out at someone deep into the subject - one of the T/Os had replacement knobs, telescopic antenna, and a small crack in the Wavemagnet that were not noted but were fully functional & something I can put down to "only a fanatic would notice".

However noting the importance some place on knobs/dials/meters, this is something that should be verified. Still I found them to be honorable people to deal with (and an error in shipping charges was corrected quickly, one of the real tests IMHO). Also the prices can be flexible if you provide documentation of current values so do not be afraid to "deal", just not on something small.

Warmly,
Padgett

ps for what its worth, if I have a bad experience with a company, I prefer not to mention it. In the case of Tucker, I received what I paid for.

From boatanchors@theporch.com Fri Mar 3 19:54:30 1995
Date: Fri, 3 Mar 1995 17:21:53 -0600

Message-Id: <Pine.ULT.3.91.950303181205.4969A-1000000@dua150.kpt.emn.com>
From: "Barry L. Ornitz" <ornitz@emngw1.emn.com>
Subject: RE: Tucker info

On the other hand, I have had several bad experiences with Tucker. The worst was when Eastman Chemical (my employer) bought some microwave test equipment from them. The equipment came with a nice certificate of calibration tracing everything back to NIST. But the equipment was missing several key components that made it inoperable, much less capable of being calibrated. Tucker refused to replace the equipment and told us to ship it back at our expense. Our corporate legal department told purchasing that this should be at Tucker's expense, so I wound up with some useless junk and Tucker never got a dime. I still have the fancy calibration certificate in my files.

I once sold Tucker some instrumentation personally. I remember having to have my attorney write them a threatening letter before I was ever paid.

I personally would trust a never-seen-before flea market dealer at Dayton before I would trust Tucker Electronics again!

73, Barry WA4VZQ
ornitz@emn.com

From boatanchors@theporch.com Fri Mar 3 12:49:01 1995
Date: Fri, 3 Mar 1995 10:59:52 -0600
Message-Id: <199503031709.JAA26940@netcom9.netcom.com>
From: rmccarty@netcom.com (roger mccarty)
Subject: Using Coke (a-Cola) on Capacitors

Fellow Boaters,

2 Questions when using Coke to clean up variable capacitors.

- 1; Should the Cola be heated, as with lemon Juice? and,
- 2; Is there a potential for discoloring ceramic surfaces?

Thanks in advance

Roger KD6CC

From boatanchors@theporch.com Fri Mar 3 18:37:05 1995
Date: Fri, 3 Mar 1995 16:41:13 -0600
Message-Id: <Pine.3.89.9503031405.A2857-0100000@netcom5>
From: paul Veltman <veltman@netcom.com>
Subject: Re: Using Coke (a-Cola) on Capacitors

Roger,

>

> 1; Sould the Cola be heated, as with lemon Juice? and,
** Sure. Adding heat speeds up the chemical reaction**

> 2; Is there a potential for discoloring ceramic surfaces?

** Damned if I know. A discolored ceramic surface is not of great
importance to me.**

73

Paul WA60KQ

From boatanchors@theporch.com Fri Mar 3 10:22:18 1995
Date: Fri, 3 Mar 1995 08:11:10 -0600
Message-Id: <Chameleon.4.01.2.950302175357.jproc@jproc>
From: jproc@worldlinx.com
Subject: Vacuum Tube Mean Time to Fail

Dear BA's,

Many thanks to all of the people who sent responses about vacuum tube computers. If you have any assemblies from these beasts, I suggest you hang on to them as they will be very scarce (and possibly valuable) as we roll into the next century. Just look at the old Command sets. There is one area that I'm not clear on and that is the reliability of any single device which uses great quantities of tubes.

I know that the life of a vacuum tube is dependent on many factors such as circuit application and operating parameters but I seem to recall reading that a receiving type tube typically has an average life of 2000 to 4000 hours. Is there any proof of this? I seem to recall that the TV repairman came around more often when the set was older.

Take the Eniac 1 computer for example. This beast had 18,000 tubes most of which probably operated in a uniform fashion. Suppose that a tube had an average life of 3000 hours. Theoretically, the computer should have operated reliably until the 3000 hour mark. After that, there should have been a tube failure every 3/18 of an hour or every 10 minutes ($3000/18000 \times 60$ minutes). If this was actually the case, the computer would be absolutely useless as it would be down most of the time. I know that the early computer designers were very concerned over this scenario.

Would all of the tubes be replaced at once at the average failure time or where they replaced 'piece meal' as they failed? I guess this might provoke some good discussion on the mean-time-to-failure of vacuum tubes operating

in large systems.

Regards,

Jerry Proc, VE3FAB
Radio Restoration Volunteer
HMCS Haida
E-mail: jproc@worldlinx.com
Toronto, Ontario

From boatanchors@theporch.com Fri Mar 3 12:00:48 1995
Date: Fri, 3 Mar 1995 10:01:55 -0600
Message-Id: <199503031610.LAA13048@Shiva.COM>
From: John Shriver <jas@shiva.com>
Subject: Re: Vacuum Tube Mean Time to Fail

Many vacuum tube computers were maintained by a process known as margin checking. For each bay, you could switch each of the power supply voltages from the fixed regulated bus to a variable one. You then varied the voltage over a specified range while running test software. If you got failures, you started fixing things. The margin test exposed the tubes that were going to fail "next". This way, you could stay slightly ahead of the tube failures.

(Group replacement of all the tubes at once would have been too expensive. Also, their life is on a bell curve, and the "short" leg is very short.)

In the later years, vacuum tube computers were built of tubes designed for 10,000 hour life. Moreover, they were usually run below the maximum ratings to further increase life.

In the earlier years, the MTBF was often under 10 hours. Run the diagnostics, run a program, run the diagnostics again. If the diagnostics ran right both times, the program results were probably correct!

Unfortunately, most of the tube computers were leased, not bought, so they probably have mostly been very thoroughly scrapped. (Just like antique phones are rather rare since AT&T was so thorough about scrapping them.)

From boatanchors@theporch.com Fri Mar 3 13:21:27 1995
Date: Fri, 3 Mar 1995 11:26:12 -0600
Message-Id: <m0rk3N-000049C@next3.acme.ist.ucf.edu>

From: clarke@acme.ist.ucf.edu (Thomas Clarke)
Subject: Re: Vacuum Tube Mean Time to Fail

Mean time to fail is a statistical fiction.

You know "lies, damn lies, and statistics"

In principle you take N tubes, run them until they fail,
and divide the total life time by N to get mean time to fail.
Let N go to infinity to get good statistics.

But there are lots of ways to get a given mean time to fail, T.
They could all live to T and drop dead simultaneously.
The lifetime could be a bell shaped curve with T as the peak.
Half (Chinese?) could live to T/2 and half to 3T/2 (NOS?).

In statistics classes they love to use an exponential life
time as an example because it is easy to calculate with.
The probability of a tube dieing at time t, is the negative
exponential of $(-t/T)$, like RC decay, or the radioactive decay
model and at time T 63% of the tubes will have died.
If this sounds odd (you might expect 50%) there is a little
bit of a paradox because the exponential life time has no
memory. Of the tubes living at time T, only 63% will die
by time 2T, and of those only 63% will die before time 3T,

and so on, so that some tubes will have very long
life times under this model.

We had to do all sorts of exercises with the exponential life time.
Light bulbs are a favorite. Of course I have yet to meet an
exponential light bulb. If I put two in a fixture at the same
time then when one goes the other soon follows, even if the bulbs
are different brands. Light bulbs seem to have a fairly narrow
bell curve life time. Makes you wonder about all the reliability
math (e.g. Space Shuttle has one chance in 10,000 of blowing up)
which often uses exponential life times because the math is easier.

So what are tubes: bell curve, or exponential? Does an old
tube with 1000 hours have just as much chance of making another
1000 hours as a tube fresh out of the box? (Ignore infant
mortality as the statisticians usually do).

Tom Clarke
KE4VFH

From boatanchors@theporch.com Fri Mar 3 15:38:35 1995
Date: Fri, 3 Mar 1995 13:29:39 -0600

Message-Id: <199503031928.NAA20758@uro.theporch.com>
From: "MELUCAS, MARC P." <MELUCAS@wsmc-mis.af.mil>
Subject: Vacuum Tube MTBF

Fellow Filament Watchers:

I took a course from Pratt & Whitney (jet engines) about a decade ago called "Weibull Analysis", allegedly developed by a staff engineer named Weibull who was interested in predicting failure times of almost anything. I need to look it up, because it was rather simple to use (which means I could do it), and I believe was more graphical than calculation based. I remember

that his methods would be pretty much on the mark for many different types of devices, and the sample population size could be either large *or* small.

Anybody else hear of this? I'll need to dig deep into old project notes and papers, but it may be of use for vacuum tubes.

Marc, KB0JPQ

From boatanchors@theporch.com Fri Mar 3 18:19:19 1995
Date: Fri, 3 Mar 1995 16:15:21 -0600
Message-Id: <60740@w5ddl.aara.org>
From: n5off@w5ddl.aara.org
Subject: Whatzit R-1247/GRC-129?

Liles Garcia recently posted a query about the above beast, and described his rig as an R-390A labeled as R-1247/GRC-129.

Does anyone know the difference if there is one?

The data on the rig is this:

R-1247/GRC-129
FSN S/N 161
Contract AF30(635)30962
Manson Labs Inc Stamford, Conn
Part No 224-0A2

Anybody got a directory to look this up?

73 de tom

From boatanchors@theporch.com Sat Mar 4 00:12:19 1995
Date: Fri, 3 Mar 1995 21:18:26 -0600
Message-Id: <199503040317.VAA24740@uro.theporch.com>
From: Jack Taylor <n7oo@huachuca-emh8.army.mil>

Subject: Re: Whatzit R-1247/GRC-129?

My reference doesn't have the R-1247, but does mention the GRC-129.

AN/GRC-129 Radio Set - A medium range, high quality 1 KW PEP SSB transmitting and receiving system operating over a freq range of 2-30 MHz. By incorporating SSB capability, this system achieves a two-to-one advantage over AM units in efficient radio spectrum use. The modified AN/GRC-29D will transmit and receive SSB, AM, CW, and FSK, as well as AM/FSK or SSB/VFT (voice freq telegraph) on a multiplexed basis. An increase in the range of comm from a few hundred miles in the premodified 450 watt AM mode is obtained and an effective increase in power with suppressed carrier which is comparable in performance to the 8 KW AM system. (end of quote)

(That should have read: AN/GRC-26D, above.) The '26D used R-390A's and a T-368 450 watt AM transmitter and sounds like the R-1247 is a version of the 390A, but built under contract for the GRC-129 system. The question is, did this version include a product detector, or did it use a separate SSB receiving adaptor?

73 de Jack

From boatanchors@theporch.com Fri Mar 3 11:25:45 1995
Date: Fri, 3 Mar 1995 09:35:46 -0600
Message-Id: <199503031545.AA25667@access3.digex.net>
From: rbenn@access.digex.net (Randall S. Benn)
Subject: WTB: Riders Vol 12 & 13

I am in need of Riders Service Manuals volumes 12 & 13. Anybody have any extras 4 sale?

Randy Benn,
Alexandria, VA

From boatanchors@theporch.com Sat Mar 4 00:12:14 1995
Date: Fri, 3 Mar 1995 21:22:11 -0600
Message-Id: <"d0a1+ZQ0000000000*"@MHS>
From: RICHARD_HUMPHREY@hp5200.desk.hp.com
Subject: RE: Xistors, fad?

RE musicians and tube amps:

There's an interesting story in the January issue of one of the stereo magazines, possibly Stereo Review, which touches on this very phenomenon.

There's an interview with a guy in England who builds custom

analog reel to reel tape decks. He rebuilds Revox and other top end machines and produces systems with mind boggling fidelity and response at huge cost.

His personally made amps use tubes. The interviewer asked the following questions on the subject: (this is paraphrased from memory; I don't have the article with me. I'll look it up if anyone is curious)

Q: Why do you use tubes?

A: It's marketing hype.

Q: Explain that

A: Everyone demands tubes in high end audio today, so that's what I use. I can get exactly the same performance from either tubes or transistors.

Q: Do you use any particular point on the tube characteristic curves to get that 'tube sound'?

A: I don't use the tube sound. My amps' output is identical to the input. Just gain. The tube sound is the result of bad design. The output transformers don't match the plate characteristics well, leading to distortion and response problems. Distributed capacitance trashes the high end. Heavy negative feedback makes the amp unstable at low frequencies and most are borderline oscillators. The much worshipped tube sound is really a demonstration of lousy amplification.

Q: Anything else?

A: There are a lot of dangerous amateurs in high-end audio today.

Well, that certainly expresses an opinion!

Richard

From boatanchors@theporch.com Fri Mar 3 14:21:39 1995

Date: Fri, 3 Mar 1995 12:23:26 -0600

Message-Id: <199503031821.MAA19606@uro.theporch.com>

From: "Alyn Scott" <scottie@cafe.glassnet.com>

Subject: Zenith Tranoceanic

I am glad that I did no damage to the T-0 by replacing the 1L6 with a 1R5 but none of my databooks list the 1L6, so I had to rely on "lemon engineering" (suck it and see). The original Zenith 1L6 still works

but it is getting a bit tired.

Alyn Scott, G7RSK